TECHNOLOGY NEEDS/OPPORTUNITIES STATEMENT
SEALANT FOR VALVES CONTAINING NITRIC ACID FOR THE S&M PROGRAM

Identification No.: RL-DD084
Date: August 2001
Program: Surveillance and Maintenance
OPS Office/Site: Richland Operations Office/ Hanford Site
PBS No.: RL-CP01
Waste Stream: N/A
TSD Title: N/A
Waste Management Unit (if applicable): N/A
Facility: 202-S

Priority Rating: This entry addresses the Accelerated Cleanup: Paths to Closure (ACPC) Priority:

____ 1. Critical to the success of the Accelerated Cleanup: Paths to Closure (ACPC)
_X_ 2. Provides substantial benefit to the ACPC projects (e.g., moderate to high lifecycle cost savings or risk reduction, increased likelihood of compliance, increased assurance to avoid schedule delays)
____ 3. Provides opportunities for significant, but lower cost savings or risk reduction, and may reduce uncertainty in ACPC project success.

Need Title: Sealant for Valves Containing Nitric Acid for the S&M Program.

Need/Opportunity Category: *Technology need* - there is no existing or currently identified technology capable of meeting the project's need (i.e., no baseline approach has been identified).

Need Description: The REDOX plutonium loadout hood has a leaking flanged valve containing nitric acid with plutonium. The valve requires encapsulation to contain any potential leaks. Other valves at the Site may have a similar need to be addressed in the future.

Schedule Requirements:
Earliest Date Required: FY 2002
Latest Date Required: Unknown.

Problem Description: The REDOX plutonium loadout hood project has a leaking flanged valve that requires encapsulation. The REDOX valve is a standard four bolt weld neck flange. Similar valves exist at all the processing facilities. The nitric acid in the REDOX valve is a 2% concentration with a pH of 1.8.

Benefit to the Project Baseline of Filling Need: Assured containment of plutonium/nitric acid combination.

Functional Performance Requirements: The technology must be able to be applied over uncleaned valves with potential wet spots of 5-10% solution of nitric acid. The application

equipment must be operable in a radiation zone while sleeved or must be easy to decontaminate. The material must have a 25-year life under contact with nitric acid (5-10% solution possible).

WBS No.	***TIP No***.
1.4.03.3.1.02.06.03.10.42	N/A

Relevant PBS Milestone: PBS-MC-030

Justification for Need:

Technical: Encapsulation reduces the risk of a release of plutonium to the remainder of the facility or to the environment.

Regulatory: There are no specific regulatory drivers for this need.

Environmental Safety & Health: An improved method could reduce worker exposure and the spread of contamination.

Cost Savings Potential (Mortgage Reduction): Unknown.

Cultural/Stakeholder Concerns: An encapsulant would reduce the risk of an environmental release.

Other: None identified.

Current Baseline Technology: None.

End User: Environmental Restoration Project

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